glomerular filtration combined with excessive salt and water resorption leads to a progressive accumulation of contrast material within the tubules.

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Hypertension Caused by Constricting Renal Lesions ("Page Kidney")

Hypertension can be produced by lesions which externally compress the kidney (Page kidney) without associated major renal artery narrowing (Goldblatt kidney). The mechanism for producing the hypertension is probably renal ischemia since abnormal split function studies, radionuclide renograms, and renal vein renin ratios have been found.

Sub-capsular and peri-renal hematomas, or scars, presumed due to previous trauma, are the most frequent cause of this entity. Excretory urography and renal arteriography can demonstrate compression of the collecting system and intrarenal arteries by an avascular intrarenal mass, without renal arterial narrowing. Diagnosis is suspected by an appropriate history of trauma (in some, but not all, cases) and abnormal radiographic findings; and substantiated by appropriate function studies. Surgical intervention (nephrectomy, hematoma evacuation) provides opportunity for cure of the hypertension in some patients.

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Grant PR, Gifford RW, Pudvan WR, et al: Renal trauma and hypertension. Amer J Cardiol 27:173-176, Feb 1971

Vascular Changes Associated With Drug Abuse

Arteriographically demonstrable changes in the arteries supplying several organs have been described as a more than casual accompaniment of drug abuse. These arteriographic changes consist of microaneurysms, indistinctness of vessel outlines, irregular segmental narrowing, and partial or complete occlusion. The kidneys and abdominal viscera have demonstrated these changes, at times in patients without symptoms referable to these organ systems; and similar changes in the brain have been noted in patients with neurological abnormalities. Histologic material in some cases has shown a necrotizing angiitis such as is found in polyarteritis nodosa. It is theorized that drug abuse causes a necrotizing angiitis although the specific causative drug(s) is not definitely known.

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Rumbaugh CL, Bergeron RT, Fang HCH, et al: Cerebral angiographic changes in the drug abuse patient. Radiology 101:335-344, Nov 1971

Diagnostic Ultrasound in the Diagnosis of Renal Masses

Ultrasonic B-scanning, which produces a two-dimensional tomographic display of the internal body structures, is capable of radically altering the conventional approach to renal mass lesions. If the excretory urogram indicates a mass, utilizing this method will show the size, position, and consistency of the lesion with 95 percent accuracy. Cysts as small as 2 cm in diameter are readily recognizable. If a typical cyst pattern is observed, direct puncture is employed, using the skin coordinate obtained from the ultrasonic scan. Transducers with central holes for needle insertion are now available to further insure accurate insertion. The cyst fluid may then be analyzed for malignant cells and fat content, and at the same time contrast is injected into the cyst to demonstrate its smooth inner lining. Cyst puncture may be performed as an outpatient procedure.